

AMENDMENTS TO THE DRAWINGS

The attached sheet(s) of drawings includes changes to Figs. 1 and 4.

Attachment: Replacement sheets (2)

REMARKS

Claims 1-3 and 5-7 are pending. Claims 1, 3, 5 and 6 have been amended and claim 4 has been canceled. The drawings have been amended. The specification has also been amended. No new matter has been added.

Claims 5 and 6 were objected to because minor informalities. Claims 5 and 6 have been amended for clarification. Withdrawal of the objection is respectfully requested.

Claim 3 was rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is overcome in light of the foregoing claim amendments.

Claims 1, 2 and 4 were rejected under 35 USC 103(a) as being unpatentable over Khan, U.S. Patent 5,192,987 in view of Yokogawa, U.S. Patent 6,690,035 B1. This rejection is respectfully traversed.

Claim 1 recites "an n-type delta doped III-N layer interposed between the AlN layer and the plurality of III-N layers, and having dopant concentration for reducing discontinuity of an electric field at an interface between the AlN layer and the III-N layers." The inclusion of this layer reduces two-dimensional hole gas (2DHG) resulting in reduction of both parallel conduction and gate leak (paragraphs [0008], [0011], [0014], and [0027]).

The Examiner asserts that Khan discloses all of the features of claim 1 except the n-type delta doped III-N layer. However, the Examiner asserts that Yokogawa discloses a MESFET comprising an active region comprising an undoped layer 22, and n-type doped layer 23. The Examiner states that Yokogawa refers to these layers as a first and second semiconductor layer, which it appears the Examiner considers to correspond to n-type delta doped III-N layers, and asserts that the second semiconductor layer has a higher concentration of impurities and a thinner film thickness. The Examiner asserts it would have been obvious to modify Khan in view of

Yokogawa to have an n-type delta doped III-N layer in order to achieve a low resistance value and high withstand properties.

Applicant submits that even assuming *arguendo* that Yokogawa teaches the claimed n-type delta doping layer, there would have been no motivation to combine Khan and Yokogawa.

As indicated by the examiner, the purpose of the active region 30 comprising an undoped layer (first semiconductor layer) 22 and n-type doped layer (second semiconductor layer) 23 disclosed in Yokogawa is to achieve a low resistance value and high withstand voltage properties. On the other hand, the purpose of the n-type delta doped III-N layer of claim 1 is to reduce the parallel conduction and gate leak by reduction of the 2DHG. In other words, whereas the purpose of the n-type doped layer 23 relates to general problems of semiconductor devices, the purpose of the claim is specific to compound semiconductor FETs such as the present invention and the device disclosed in Khan. Due to the difference of purposes, the disclosure of Yokogawa would not have motivated one of ordinary skill in the art to add an n-type delta doped II*III-N layer to the compound semiconductor FET disclosed in Khan.

Furthermore, the n-type doped layer 23 of Yokogawa differs from the claimed n-type delta doped III-N layer. Specifically, whereas the function of the former is to generate electrons in the undoped layer 22, the function of the latter is to reduce concentration of the 2DHG.

In accordance with the foregoing, there would have been no motivation to combine these references as asserted by the Examiner. Accordingly, Applicant requests that this rejection be withdrawn.

Claim 3 was rejected under 35 USC 103(a) as being unpatentable over Khan, in view of Yokogawa, as applied to claims 1, 2 and 4, and further in view of Phillips, U.S. Patent 6,770,902 B2. This rejection is respectfully traversed.

As stated above, there would have been no motivation to modify Khan in view of Yokogawa. Thus, this rejection is traversed for the reasons set forth above. Applicant therefore requests that this rejection be withdrawn.

Claims 5 and 6 were rejected under 35 USC 103(a) as being unpatentable of Khan in view of Yokogawa as applied to claims 1, 2 and 4, and further in view of Yamaguchi, U.S. Patent 6,100,106. This rejection is respectfully traversed.

As stated above, there would have been no motivation to modify Khan in view of Yokogawa. Thus, this rejection is traversed for the reasons set forth above. Applicant therefore requests that this rejection be withdrawn.

Claims 7 was rejected under 35 USC 103(a) as being unpatentable over Khan in view of Yokogawa as applied to claim 1, 2 and 4, and further in view of Abrokwah, U.S. Patent 5,895,929. This rejection is respectfully traversed.

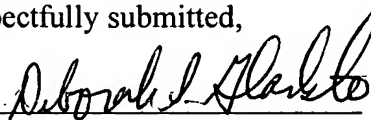
As stated above, there would have been no motivation to modify Khan in view of Yokogawa. Thus, this rejection is traversed for the reasons set forth above. Applicant therefore requests that this rejection be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 204552031600.

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Respectfully submitted,

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Attachments

REPLACEMENT SHEETS